1124-95 **Reticulated Platelets in Acute Coronary Syndrome: A Potential Marker for Platelet Consumption**

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Introduction: The physiologic sequalae of damage to the vascular endothelium which include platelet adhesion to subendothelial elements in the blood vessel wall, recruitment of circulating platelets to form a hemostatic plug, and its subsequent consolidation with fibrin strands are now well established. We hypothesize that the presence of circulating reticulated (containing-RNA) platelets is potentially a reliable marker for platelet aggregation and thrombus formation in acute coronary syndrome.
Methods: Forty-seven subjects (15 controls, 32 patients with acute coronary syndrome) were studied. All patients had chest pain within 24 hours along with ischemic ST changes on the ECG or evidence of myocardial injury. Blood was collected for platelet count, mean platelet volume, and for flow cytometric analysis for the presence of reticulated platelets as assessed by uptake thiazole orange, and the expression of CD41a for the GPIIb/IIIa receptor on the platelet membrane. All studies were repeated in the presence of RNA-ase with evidence of 90% decrease of thiazole orange uptake,
Results: The mean platelet count was 220±32 in the control group and 207±45 in the acute coronary syndrome patients. The mean platelet volume was statistically higher in patients than in controls (10.6±1 fl vs. 9.6±0.5 fl, p=0.008). Sixteen percent of the overall platelet population was reticulated in the acute coronary syndrome group compared to only 3 percent in the control group. Patients admitted with ST-elevation acute coronary syndrome had more reticulated platelets than those with non- ST-elevation (21.3±6.9 vs. 14.9±6.9, p=0.01). Also, diabetic patients presenting with acute coronary syndrome had a significantly higher percentage of circulating reticulated platelets compared to non diabetic patients (p=0.0003). Aspirin seems to eliminate these differences.
Conclusion: Reticulated platelets appear to be a reliable marker for platelet aggregation and consumption in acute coronary syndrome. More studies are needed to further understand this novel observation.

1124-114 **EARLY Platelet Substudy**

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Background: Receptors other than GP IIb/IIIa may mediate leukocyte-platelet-endothelial interactions that obstruct the microvasculature in acute coronary syndromes (ACS) and cause microinfarcts. The effect of eptifibatide (EP) on these receptors was investigated in the EARLY trial. **Methods:** Platelet receptors (mean fluorescense intensity) and aggregation (10μ mol ADP) were determined at baseline, and at 3,6,12 and 24 hours after randomization to early (E) (in the Emergency Department, n=27) or late (L) (12-24 hours, n=28) EP therapy. **Results:** Aggregation was inhibited by early EP (baseline, 72 ± 20% ; 3 hours post, 7± 9 %p<0.001). CD31, CD63, CD 107a, CD 107b, CD 41 (GPIIb/IIIa expression), and CD 62p were not affected in either group. Leukocyte-platelet aggregates trended upward after presentation (early baseline, 43.1± 26.0 versus 65.8 ±35.6, p=.09). PAC-1 (GPIIb/IIIa activity), CD 51/61 (vitronectin receptor and CD 42b (GP Ib) were inhibited by EP (p<.05). **Conclusion:** In Emergency Dept patients with ACS, EP rapidly and profoundly inhibits platelet aggregation and reduces GP IIb/IIIa activity and the expression of CD51/61 and CD 42b; the latter two effects may also contribute to the drug's anti-thrombotic effect. However, platelet-leukocyte aggregate formation, a marker of platelet activity rises within 24 hours after presentation despite eptifibatide therapy and is a potential mechanism for microvascular obstruction.

	CD 42b		PAC-1		CD51/61	
	E	L	E	L	E	L
Baseline	207±60	126±70+	5.8±.9	5.5±1.2	11.9±4.4	11.5±5.5
3H	121±40*	140±93+	2.2±.4*	4.9±2.1+	5.9±3.2*	10.8±3.1+
6H	135±73*	117±59	2.4±1.1*	4.4±1.6+	5.6±2.3*	12.4±3.3+
12H	129±62*	102±42+	2.6±1.1*	3.7±.7	6.1±2.9*	12.9±3.0+
24H	135±82*	107±59+	2.3±.4*	3.1±1.4*	6.0±2.3*	6.2±2.3*

*p<.05 vs. baseline +p<.05 between groups

1124-115 **Eptifibatide Provides Additional Platelet Inhibition in Non-ST Elevation Myocardial Infarction Patients Already Treated With Aspirin and Clopidogrel: Results of the PEACE Study**

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Background: Thienopyridines and glycoprotein(Gp) IIb/IIIa antagonists have been tested separately with success in the treatment of non ST elevation myocardial infarction (NSTEMI). Although often co-prescribed in this context, the antiplatelet interaction of these agents is poorly described and the superiority of GpIIb/IIIa antagonists above thienopyridine treatment alone is not clear. The hypothesis of the study was that eptifibatide offered further antiplatelet effect above clopidogrel in the medical stabilisation of NSTEMI prior to expeditive PCI.
Methods: 32 NSTEMI patients treated with aspirin and enoxaparin were studied using flow-cytometry to define parameters of platelet activation with a panel of agonists before clopidogrel, following clopidogrel and during an eptifibatide infusion.
Results: With ADP, TRAP and U46, relative reductions in PAC-1 expression (conformationally activated Gp IIb/IIIa receptor) of 51%, 46% and 39% (all p<0.0001) respectively were seen with clopidogrel but a further 85%, 84% and 72% (all p<0.0001) reduction was seen with eptifibatide. Fibrinogen binding was significantly reduced following clopidogrel by 77%, 63% and 69% (all p<0.0001) and again further reduced by 99%, 98% and 98% (all p<0.0001) with eptifibatide. The total number of GpIIb/IIIa receptors (P2) and P-selectin expression were also reduced following clopidogrel, with all agonists, (p<0.026, ADP and TRAP) however both parameters increased slightly in all cases with eptifibatide (p<0.012 with ADP).
Conclusion: The activated IIb/IIIa expression and fibrinogen binding findings indicate that eptifibatide provides significant potent antiplatelet activity above that of clopidogrel suggesting additive immediate protection in the treatment of NSTEMI. The P2 and P-selectin findings suggest the possibility of a partial agonist (and/or pro-inflammatory) effect, the consequences of which, with longer infusions are unknown.

1124-116 **Predictors of Early Mortality From an Unselected Patient Registry of Acute Coronary Syndromes (TRACS)**

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Background: Several stratification models exist to predict early and late complications from an acute coronary syndrome (ACS). Most of these models are based on patient populations selected from randomized clinical trials and most are used to predict composite outcomes. The goal of this study was to determine predictors of mortality as a solitary end point in an unselected cohort of patients presenting to the Emergency Department (ED) with an ACS.
Methods: The Registry of Acute Coronary Syndromes (TRACS) represents a dataset of all patients presenting with an ACS to the ED of 9 participating centers.
Results: Three thousand four hundred sixty four patients of whom 60% were male and 17% were minorities comprised the TRACS registry. Sixty two percent were admitted. The in-hospital mortality rate for admitted patients was 9%. Patients who died in-hospital were older (72 vs 67 y, p = < .001), more likely Caucasian (90% vs 82%, p= .013), and more likely to have an elevated troponin I (64% vs 46%, p= < .001). Conventional risk factors were similar but non-survivors received beta-blockers (36% vs 44%, p = < .021), nitrates (27% vs 54%, p < .001), IIb/IIIa platelet blockers (4% vs 13%, p= < .001) and IV nitrates in the ED (24% vs 44%, p < .001) less often. Multivariate analysis revealed increased age (odds ratio, 95 CI's; 1.02, 1.01- 1.03; p < .001), and an elevated troponin (1.866, 1.32- 2.60; p <. 001) to be associated with increased mortality while in-hospital IIb/IIIa use (.28, .12- .65; p= .003) and IV nitrate use in the ED (.44, .33-.59; p< .001) were associated with reduced mortality.
Conclusion: In this unselected population of admitted acute coronary syndrome patients, mortality was associated with age and elevated troponin levels while in-hospital use of IIb/IIIa platelet blockers and IV nitrate therapy were associated with hospital survivorship. These results reaffirm the prognostic value of age and troponins and the value of more aggressive medical management.

POSTER SESSION

1125 Risk Stratification in Acute Coronary Syndrome

Monday, March 31, 2003, 3:00 p.m.-5:00 p.m.
McCormick Place, Hall A
Presentation Hour: 3:00 p.m.-4:00 p.m.

1125-96 **Performance of the Thrombolysis in Myocardial Infarction Risk Index for Early Acute Coronary Syndrome in the National Registry of Myocardial Infarction: A Simple Risk Index Predicts Mortality in Both ST and Non-ST Elevation Myocardial Infarction**

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Background: A simple risk index (heart rate x [Age/10]^2/SBP) developed from patients with ST elevation myocardial infarction (STEMI) accurately predicts mortality in clinical trials of fibrinolysis, but has not been evaluated in a general population with STEMI or non-ST elevation MI (NSTEMI).
Methods: To evaluate the TIMI Risk Index (TRI) in such a population in the US, we tested it in the National Registry of Myocardial Infarction (NRMI) 3 and 4. NRMI patients were divided into pre-defined risk groups based on the derivation set from patietns receiving fibrinolysis in InTIME II.
Results: 117,676 patients with STEMI and 238,815 with NSTEMI were eligible for analysis. NRMI STEMI patients had a higher risk profile than those in the derivation set (Median TRI: 27 vs. 20). Division of those with STEMI into 5 pre-defined risk groups